

What is claimed is:

1 1. A glucose sensing device for implantation within subcutaneous tissue of an  
2 animal body, the glucose sensing device comprising:  
3 a first chamber containing first magnetic particles and a first hydrocolloid solution  
4 wherein the first magnetic particles are dispersed in the first hydrocolloid solution and  
5 wherein glucose within the animal body may enter and exit the first chamber; and  
6 a reference chamber containing second magnetic particles and a second  
7 hydrocolloid solution wherein the second magnetic particles are dispersed in the second  
8 hydrocolloid solution.

1 2. The glucose sensing device of claim 1 wherein the first and second  
2 hydrocolloid solution is a ConA-dextran hydrocolloid.

1 3. The glucose sensing device of claim 1 wherein the first and second  
2 magnetic particles are amine-terminated particles.

1 4. The glucose sensing device of claim 1 wherein the amine-terminated  
2 particles having a mean diameter of about 1  $\mu\text{m}$ .

1 5. The glucose sensing device of claim 1 wherein the first and second  
2 magnetic particles include at least one rare earth element.

1           6.     The glucose sensing device of claim 5 wherein the at least one rare earth  
2 element is selected from the group consisting of neodymium and samarium.

1           7.     The glucose sensing device of claim 1 wherein the first and second  
2 magnetic particles are selected from the group consisting of neodymium, samarium,  
3 neodymium-iron-boron, samarium-cobalt, iron, permalloy, superpermalloy, cobalt,  
4 nickel, steel, and alnico.

1           8.     The glucose sensing device of claim 1 wherein the first and second  
2 magnetic particles include a ferromagnetic material.

1           9.     The glucose sensing device of claim 1 wherein the viscosity of the first  
2 hydrocolloid solution changes in response to the presence of glucose.

1           10.    A glucose sensing device for implantation within subcutaneous tissue of  
2 an animal body, the glucose sensing device comprising:  
3         a first chamber containing first magnetic particles and a hydrocolloid solution  
4 wherein the first magnetic particles are dispersed in the hydrocolloid solution and  
5 wherein glucose within the animal body may enter and exit the first chamber; and  
6         a reference chamber containing second magnetic particles and a reference  
7 solution wherein the second magnetic particles are dispersed in the reference solution.

1            11.    The glucose sensing device of claim 10 wherein the reference solution  
2 includes a known viscosity.

1            12.    The glucose sensing device of claim 10 wherein the reference solution  
2 includes a constant viscosity.

1            13.    The glucose sensing device of claim 10 wherein the reference solution  
2 includes a known viscosity.

1            14.    The glucose sensing device of claim 10 wherein the reference solution  
2 includes oil or alcohol compounds.

1            15.    The glucose sensing device of claim 10 wherein the hydrocolloid solution  
2 is a ConA-dextran hydrocolloid.

1            16.    The glucose sensing device of claim 10 wherein the first magnetic  
2 particles are amine-terminated particles.

1            17.    The glucose sensing device of claim 10 wherein the amine-terminated  
2 particles having a mean diameter of about 1  $\mu\text{m}$ .

1            18.    The glucose sensing device of claim 10 wherein the first magnetic  
2 particles include at least one rare earth element.

1           19.    The glucose sensing device of claim 10 wherein the first magnetic  
2   particles a ferromagnetic material.

1           20.    The glucose sensing device of claim 10 wherein the viscosity of the first  
2   hydrocolloid solution changes in response to the presence of glucose.